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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/831,050A

DATE: 12/19/2003 TIME: 10:37:16

Input Set: N:\AMC\I831050A.raw

Output Set: N:\CRF4\12182003\I831050A.raw

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ENTERED
      1 <110> APPLICANT: SHONE, Clifford Charles
             SUTTON, John Mark
      3
             HALLIS, Bassam
             SILMAN, Nigel
      5 <120> TITLE OF INVENTION: Delivery of Superoxide Dismutase to Neuronal Cells
      6 <130> FILE REFERENCE: 1581.0800000
C--> 7 <140> CURRENT APPLICATION NUMBER: US/09/831,050A
      8 <141> CURRENT FILING DATE: 2001-08-20
      9 <150> PRIOR APPLICATION NUMBER: PCT/GB99/03699
     10 <151> PRIOR FILING DATE: 1998-11-05
     11 <160> NUMBER OF SEQ ID NOS: 14
     12 <170> SOFTWARE: PatentIn Ver. 2.1
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              Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His
     22
                                               25
                                                                   30
     23
              Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp
     24
                      35
                                           40
     25
             Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu
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              Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly His Ala
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                                  70
                                                       75
     29
             Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Glu
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                              85
     31
              Pro Thr Gly Glu Leu Ala Glu Ala Ile Asn Lys Lys Phe Gly Ser Phe
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                                             105
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                                          120
                                                              125
     35
              Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr
     36
                                      135
                                                          140
             Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile
     37
     38
                                 150
                                                      155
    39
             Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn
    40
                                                  170
     41
             Arg Arg Pro Glu Tyr Ile Ala Ala Phe Trp Asn Ile Val Asn Trp Asp
     42
                         180
                                             185
    43
             Glu Val Ala Lys Arg Tyr Ser Glu Ala Lys Ala Lys
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RAW SEQUENCE LISTING DATE: 12/19/2003 PATENT APPLICATION: US/09/831,050A TIME: 10:37:16

Input Set : N:\AMC\I831050A.raw

Output Set: N:\CRF4\12182003\1831050A.raw

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                                           25
55
         Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp
56
                                      40
57
         Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu
58
                                  55
59
         Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly His Ala
                              70
                                                   75
60
         Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Glu
61
62
63
         Pro Thr Gly Glu Leu Ala Asp Ala Ile Asn Lys Lys Phe Gly Ser Phe
64
                     100
                                          105
                                                              110
65
         Thr Ala Phe Lys Asp Glu Phe Ser Lys Ala Ala Ala Gly Arg Phe Gly
66
                                     120
67
         Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr
68
                                 135
                                                      140
69
         Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile
70
                             150
                                                  155
71
         Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn
72
                                             170
                         165
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88
                      20
                                          25
89
         Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp
90
                                      40
91
         Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu
92
93
         Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly His Ala
94
                              70
                                                   75
         Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Glu
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Input Set : N:\AMC\I831050A.raw

Output Set: N:\CRF4\12182003\I831050A.raw

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97	Pro	Thr	Glv	Gĺn		Ala	Asp	Ala	Tle		Lvs	Lvs	Phe	Gly		Phe
98	110		_	100			ТОР		105		טעב	2,0		110	OCI	1110
99	Thr	Δla			Asn	Glu	Phe		-	Δla	Δla	Δla		Arg	Pho	Glv
100			115		1100	014		120		1124	112.0		125		- 110	O _T y
101	Ser	Glv			Ψrn	T.e.11	Val			Δsn	Glv	G111		Glu	Tla	Thr
102	501	130	-	пια	111	nea	135		11011	. 11011	. Oly	140		OI u	110	1111
102	Sar			7 en	Gln	Aen			Tlo	Mat	Glu			Thr	Dro	Ile
103	145		. L.LO	ASII	GIII	150	261	110	116	1100	155	_	цуз	TILL	FIO	160
104			ton	7 an	17-1		Clu	uic	ת 1 ת	Ψ			T 1/0	Ф	C1 2	Asn
105	цец	СТУ	пеа		165	_	GIU	1113	Αια	170	_	ьeu	. шуз	тут	175	
100	λνα	Λrα	Dro	Clu			Nlο	ЛΊэ	Dho			Wal	Wal	Λcn		Asp
107	Arg	ALG	FLO	180	_	116	лта	ліа	185	_	, Poli	. vai	vaı	190	тър	ASP
100	Clu	Val	ח ח			ጥኒኒን	Sor	Glu			ר ו ת	Tue	Gln		Sar	Cys
110	GIU	vaı	195	пÃЭ	Arg	тут	261	200		цуз	, ATO	ьуз	205	ALG	Ser	Cys
111	C1,,	T O11	•	Dro	722	C1++	Sor			Clv	Sor	- חות		λου	7) cm	Leu
112	GIY	210		FIO	Arg	СТУ	215	_	FIO	GIY	ser	220		Mon	ASP	пеп
	C···			17-1	700	7 0 5			Lou	Dho	Dho			502	C1.,	7.00
113 114			ту	val	ASII	230	пр	Asp	ьeu	Pne	235		PIO	ser	GIU	Asp
	225		mb	71	7		7	T	ċ1	. C1			mb so	C - m	7 ~~	240
115	ASII	Pne	IIII	ASII		ьeu	ASII	гуѕ	СТУ			тте	1111	ser		Thr
116	7	71.	C1	7.7.	245	C1	C1	7	т1.	250		7)	T		255	
117	Asn	тте	GIU			GIU	GIU	ASII			ьeu	Asp	ьeu		GIN	Gln
118	m	m	¥	260		7	DL:	7	265		D	C1	7	270	C	т1.
119	ıyı	ıyı		1111	Pne	ASII	Pne	_		GIU	PIO	GIU		Ile	ser	TTe
120	C1	7	275	Com	Com	7 ~~	т1 а	280		C1-	T 0.11	C1	285	Mot	Dwa	7) a.s.
121	GIU			ser	ser	ASP		тте	σту	GIII	Leu			мес	PIO	Asn
122 123	Tla	290		Dha	D	7	295	T	T	П	C1	300		Τ	П	mb w
123	305		Arg	rne	PIO	310	GTA	ьуѕ	пЪг	ıyı	315		ASP	гуу	тут	Thr 320
			Ui o	т	T 011		71.	C1 n	C1	Dho			C1	T ***	C0.2	
125 126 [.]	мес	rne	птѕ	ıyı	325	Arg	Ата	GIII	GIU	330		птъ	сту	Lys	335	_
127	Tlo	λla	T 011	Thr		Sor	Wal	7 cn	Glu.			Lou	Aen	Dro		
128	116	ніа	ьeu	340	ASII	ser	vaı	ASII	345		теи	neu	ASII	350	261	Arg
129	V a l	Тиг	Thr		Pho	Sor	Sor	7) cm	-		Luc	Tuc	Wa 1		Luc	Ala
130	val	ı yı	355	FIIE	rne	per	261	360		vaı	цуз	цуз	365	ASII	шуз	AIA
131	Thr	Clu		Λla	Mot	Dho	T 011			Wal	Glu	Gln		1751	ጥ‹‹›	Asp
132	1111	370		Ата	nec	rne	375	Сту	тър	vaı	GIU	380		vaı	тут	ьэр
133	Dha			Glu	Thr	Sor		V=1	Sar	Thr	Thr			Tlo	Δla	Asp
134	385	1111	Asp	GIU	1111	390	GIU	val	261	1111	395		цуз	116	Ата	400
135		Thr	Tla	Tlo	T10		ጥ፣፣ድ	Tlo	G) v	Dro			Aen	Tlo	G1 v	Asn
136	116	1111	TTE	116	405	PIO	ıyı	116	GIY	410		пеи	ASII	116	415	
137	Mot	T 011	Тих	Tvc		7.00	Dho	17-1	C1,,			T1.	Dho	Sor		
138	met	ьеu	тÀт	ьуs 420	_	ASP	rne	val	425		ьeu	тте	rne	430	ату	Ala
139	W-1	Tla	T 011			Dha	т1-	D~^			7/1 ~	T1~	D~^		Lou	G1 17
140	val	116		ьeu	GIU	rne	тте	440		тте	мта	тте	445		ьeu	Gly
	ТЪ	Dha	435	T 01-	W- 1	C ~ ~	Ф			7 ~~	T	17 n 7			17-1	Gla
141 142	Till			neu	val	ser	_		VIG	ASII	ьγу			TIIT	val	Gln
	ጥኤ⊷	450		7\ ~~	7.1 -	T 01-	455		71 ~~ ~	7. ~ ~	C1	460		7. ~~	C1,,	Val
143			ьзр	ASII	HTG		ser	ьуѕ	AT G	ASN			ттр	ASP	GIU	Val 480
144	465					470					475					400

RAW SEQUENCE LISTING

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148											_			_		_		
149			Asp	Leu	Ile	_	Lys	Lys	Met	Lys		Ala	Leu	Glu	Asn		Ala	Glu
150		148																
151			Ala	Thr	Lys	Ala	Ile	Ile	Asn	Tyr	Gln	Tyr	Asn	Gln	Tyr	Thr	Glu	Glu
152		150			515					520					525			
Asn Glu Ser Ile		151	Glu	Lys	Asn	Asn	Ile	Asn	Phe	Asn	Ile	Asp	Asp	Leu	Ser	Ser	Lys	Leu
154		152		530					535					540				
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156		154	545					550					555					560
Lys		155	Gln	Cys	Ser	Val	Ser	Tyr	Leu	Met	Asn	Ser	Met	Ile	Pro	Tyr	Gly	Val
158		156					565					570					575	
158		157	Lys	Arg	Leu	Glu	Asp	Phe	Asp	Ala	Ser	Leu	Lys	Asp	Ala	Leu	Leu	Lys
160			_	_			_		-									
160		159	Tyr	Ile	Tyr	Asp	Asn	Arg	Gly	Thr	Leu	Ile	Gly	Gln	Val	Asp	Arg	Leu
162			-			•		-	-				-			-	•	
162	٠	161	Lys	Asp	Lys	Val	Asn	Asn	Thr	Leu	Ser	Thr	Asp	Ile	Pro	Phe	Gln	Leu
164 625		162	-		-								-					
165		163	Ser	Lys	Tyr	Val	Asp	Asn	Gln	Arg	Leu	Leu	Ser	Thr	Phe	Thr	Glu	Tyr
166		164	625					630					635					640
167		165	Ile	Lys	Asn	Ile	Ile	Asn	Thr	Ser	Ile	Leu	Asn	Leu	Arg	Tyr	Glu	Ser
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169		167	Asn	His	Leu	Ile	Asp	Leu	Ser	Arg	Tyr	Ala	Ser	Lys	Ile	Asn	Ile	Gly
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171		169	Ser	Lys	Val	Asn	Phe	Asp	Pro	Ile	Asp	Lys	Asn	Gln	Ile	Gln	Leu	Phe
172		170																
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174 705 710 715 725 720 175 Pro Lys Tyr Phe Asn 725 Ser Ile Ser Leu Asn Asn Asn Glu Tyr Thr Ile Ile 176 730 735 735 177 Asn Cys Met Glu Asn Asn Ser Gly Trp Lys Val Ser Leu Asn Tyr Gly 745 740 740 745 745 750 760 765 765 765 765 765 765 765 765 765 765 765 765 765 765 765 765 765 765 780 78		172		690					695					700				
175 Pro Lys Tyr Phe Asn Ser Ile Ser Leu Asn Asn Glu Tyr Thr Ile Ile Ile 176 735 736 736 736 736 736 735 736 736 737 735 736 737 736 737 737 737 737 737 737 737 737 737 737 737 737 737 737 737 737 737 737 737 7		173	Tyr	Asn	Ser	Met	Tyr	Glu	Asn	Phe	Ser	Thr	Ser	Phe	Trp	Ile	Arg	Ile
176		174																
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178 179 179 180 180 180 180 180 180 180 180 180 180		176																
Try Glu Try Try Thr Leu Gln Asp Thr Gln Glu Try Try			Asn	Cys	Met	Glu	Asn	Asn	Ser	Gly	Trp	Lys	Val	Ser	Leu		Tyr	Gly
180 755 760 765 181 Val Phe Lys Tyr Ser Gln Met Ile Asn Ile Ser Asp Tyr Ile Asn Arg 182 770 770 775 775 780 780 780 1le Asn Ile Asn I		178																•
181 Val Phe Lys Tyr Ser Gln Met Ile Asn Ile Ser Asp Tyr Ile Asn Arg 183 Trp Ile Phe Val Thr Ile Thr Asn A		179	Glu	Ile		Trp	Thr	Leu	Gln	Asp	Thr	Gln	Glu	Ile	Lys	Gln	Arg	Val
182 770 775 780 183 Trp Ile Phe Val Thr Ile Phe Val Thr Ile Thr Asn Asn Arg Leu Asn Asn Ser Lys Ile 184 785 790 795 800 185 Tyr Ile Asn Gly Arg Leu Ile Asp Gln Lys Pro Ile Ser Asn Leu Gly 186 805 810 815 187 Asn Ile His Ala Ser Asn Asn Ile Met Phe Lys Leu Asp Gly Cys Arg 188 820 825 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855		180																
183 Trp Ile Phe Val Thr Ile Thr Asn Asn Arg Leu Asn Asn Ser Lys Ile 184 785 790 790 795 795 800 185 Tyr Ile Asn Gly Arg Leu Ile Asp Gln Lys Pro Ile Ser Asn Leu Gly 805 810 810 815 187 Asn Ile His Ala Ser Asn Asn Ile Met Phe Lys Leu Asp Gly Cys Arg 830 820 825 825 830 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 845 845 190 835 840 840 845 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 860 860		181	Val	Phe	Lys	Tyr	Ser	Gln	Met	Ile	Asn	Ile	Ser	_	Tyr	Ile	Asn	Arg
184 785 790 795 800 185 Tyr Ile Asn Gly Arg Leu Ile Asp Gln Lys Pro Ile Ser Asn Leu Gly 805 805 810 810 815 187 Asn Ile His Ala Ser Asn Asn Ile Met Phe Lys Leu Asp Gly Cys Arg 825 830 830 188 820 825 825 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 845 845 190 835 840 845 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 855 860 860																		
185			\mathtt{Trp}	Ile	Phe	Val	Thr	Ile	Thr	Asn	Asn	Arg	Leu	Asn	Asn	Ser	Lys	
186 805 810 815 187 Asn Ile His Ala Ser Asn Asn Ile Met Phe Lys Leu Asp Gly Cys Arg 188 820 825 825 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860			785					790					795					800
187 Asn Ile His Ala Ser Asn Asn Ile Met Phe Lys Leu Asp Gly Cys Arg 188 820 825 825 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860		185	Tyr	Ile	Asn	Gly		Leu	Ile	Asp	Gln	Lys	Pro	Ile	Ser	Asn	Leu	Gly
188 820 825 830 189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860		186					805					810					815	
189 Asp Thr His Arg Tyr Ile Trp Ile Lys Tyr Phe Asn Leu Phe Asp Lys 190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860		187	Asn	Ile	His	Ala	Ser	Asn	Asn	Ile	Met	Phe	Lys	Leu	Asp	Gly	Cys	Arg
190 835 840 845 191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860		188				820					825					830	•	
191 Glu Leu Asn Glu Lys Glu Ile Lys Asp Leu Tyr Asp Asn Gln Ser Asn 192 850 855 860		189	Asp	Thr	His	Arg	Tyr	Ile	Trp	Ile	Lys	Tyr	Phe	Asn	Leu	Phe	Asp	Lys
192 850 855 860		190			835					840					845			
		191	Glu	Leu	Asn	Glu	Lys	Glu	Ile	Lys	Asp	Leu	Tyr	Asp	Asn	Gln	Ser	Asn
193 Ser Gly Ile Leu Lys Asp Phe Trp Gly Asp Tyr Leu Gln Tyr Asp Lys		192		850	•				855					860				
		193	Ser	Gly	Ile	Leu	Lys	Asp	Phe	${\tt Trp}$	Gly	Asp	Tyr	Leu	Gln	Tyr	Asp	Lys

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Input Set : N:\AMC\I831050A.raw

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195		Тиг	ጥኒኒዮ	Mat	Tan		LOU	Тиг	Asp	Pro		T.ve	Tur	U = 1	Aen	-
196	110	ıyı	тут	ricc	885	ASII	пец	1 9 1	пор	890	11011	БуО	- y -	vai	895	Val
197	Aen	Δen	V = 1	Glv		Δrα	Glv	Tur	Met		I.e.ii	Lvs	Glv	Pro		Glv
198	ASII	ASII	vai	900	110	Arg	ОТУ	1 y 1	905	1 y	Dea	БуО	OL y	910	nrg	Cry
199	Sor	V = 1	Mot		Thr	Aen	Tla	Тиг	Leu	Δen	Ser	Sar	Ī. - 11		Δra	Glv
200	ser	vaı	915	1111	1111	ASII	116	920	шеu	L'SII	Der	Ser	925	тут	Arg	Gry
201	Thr	Two		Tlo	Tlo	Tuc	Tue		Ala	Sor	G1v	Δen	-	Aen	Aen	Tla
202	1111	930	1116	116	116	цуз	935	1 7 1	ALG		OTY	940	цуз	nsp	ASII	110
203	V = 1		Δen	Δen	Aen	Δra		Tur	Ile		Val	-	Val	Lvs	Asn	Lvs
204	945	11L G	71011	11011	7150	950	• • • •	- y -	110	11011	955		· u _	בעב	11011	960
205		Tur	Ara	Len	Ala		Asn	Ala	Ser	Gln		G1 v	Val	Glu	Lvs	
206	OIU	- y -	,,,,	Lou	965		11011	1114	001	970		ريد		014	975	
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209	Val	Met	īvs		Lvs	Asn	Asp	Gln	Gly	Ile	Thr	Asn	Lvs		Lvs	Met
210			995	-	-,0		. –	1000	1				1005	- 4 -,	1	
211	Asn			Asp	Asn	Asn			Asp	Ile	Glv			Glv	Phe	His
212		1010	0111	ı.op			1015					1020		1		
213			Asn	Asn	Ile			Leu	Val	Ala			Trp	Tvr	Asn	Arq
214	102					1030					1035		•	-		104Õ
215			Glu	Arg	Ser	Ser	Arq	Thr	Leu	Gly	Cys	Ser	Trp	Glu	Phe	Ile
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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/831,050A

DATE: 12/19/2003 TIME: 10:37:17

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